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EXAMINER

EKONG, EMEM

ART UNIT PAPER NUMBER

2688

DATE MAILED: 10/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|-------------------------------------|--|
| Office Action Summary | Application No. 10/764,077 | Applicant(s) KELKAR, KRIS | |
| | Examiner EMEM EKONG | Art Unit 2688 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5,6,9,10,15,19-22,26,27,30,31,36,40 and 41 is/are rejected.
- 7) ☒ Claim(s) 2-4,7,8,11-14,16-18,23-25,28,29,32-35 and 37-39 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>11.1.05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The abstract of the disclosure is objected to because it includes legal phraseology, such as said: on line 15. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1,5, 19, 20, 22, 26, 40 and 41 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S Patent No.6839574 B2 to Petrus et al. (Petrus).

Regarding claims 1 and 22, Petrus discloses a method and wireless communication device (i.e. transfer station, base station) for communications with clients in a communication network (See col. 3 lines 37-41, where Petrus is discussing a base station, known to communicate with clients). Petrus discloses at least one antenna (see col. 3 lines 41-43). Petrus discloses a receive processor that processes receive signals from said antenna and provides corresponding receive location information (col. 3 lines 52-64, and col. 7 lines 25-37), (receiving uplink signals and determining angle of arrival (AOA) of signals from mobiles, i.e., the mobile relative estimated location to the base station).

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Petrus discloses a media access controller that receives signals from said receive processor and provides output signals for transmission; and a location-information transformer that transforms said receive location information into transmit location information (col. 7 lines 25-37, col. 7 lines 60-67, and col. 10 lines 12-35), (using the receive location information to form downlink beams, or directional signals, via hardware or software entities). Petrus discloses a transmit processor that provides transmit signals to said antenna in response to at least one of said output signals and said transmit location information (col. 3 lines 37-67, and col. 4 lines 14-28), (downlink beam forming of communications signals based on the receive location estimates and downlink calculations).

Regarding claims 5 and 26, Petrus discloses the method and communication device of claim 1, wherein said media access controller is configured to direct spatial processing of said receive processor and said transmit processor (see figures 1 and 2, col. 3 line 55-col. 4 line 5, col. 4 lines 14-27, col. 5 line 65-col. 5 line 6, and col. 6 lines 55-60), (signal processor processes the received signal and estimates downlink communication signals).

Regarding claims 19, and 40, Petrus discloses the method and communication device of claim 1, wherein said transmit location information is in the form of at least one of a selected antenna, a selected beam generated by said antenna, a phase/amplitude signal, and a set of complex coefficients (col. 6 line 55-col. 9 line 18).

Regarding claims 20 and 41, Petrus discloses the method and communication device of claims 1 and 22, wherein said media access controller is

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configured to parse said receive signals and said output signals (col. 3 line 55- col.4 line 5, col. 4 line 65-col. 5 line 6, and col. 6 lines 55-60) (base station processes uplink signals and estimate downlink beamforming weights in response to uplink signals).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 6 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Petrus in view of U.S Patent No. 6,006,110 to Gregory G. Raleigh (Raleigh).

Regarding claims 6 and 27, Petrus discloses the method and communication device of claims 1 and 22, however, Petrus fails to disclose further including a modem that demodulates signals from said receive processor and modulates said output signals.

Raleigh discloses further including a modem (demodulator) that demodulates signals from said receive processor and modulates (modulator) said output signals (see figure 3, and col. 7 lines 12-45), (signal to be transmitted to desired mobile radio unit is modulated by the modulator, and received signal is demodulated by the demodulator).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Petrus with the teachings of Raleigh, such that modem that demodulates signals from said receive processor and modulates said output signals, for the purpose of modulating the signal for transmission and recovering the modulated signal.

7. Claims 9, 10, 30, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Petrus in view of U.S Patent No. 6,597,683 B1 to Stephan Gehring et al. (Gehring)

Regarding claims 9 and 30, Petrus discloses the method and communication device of claims 1 and 22, and command said receive processor to provide corresponding receive location information to said location-information transformer.

However, Petrus fails to disclose wherein said media access controller is configured to partition a data signal into data fragments and to:

command said transmit processor to provide a first data fragment to said antenna in an output signal that is spatially processed in accordance with predetermined location information that corresponds to all of said clients; and

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command said receive processor to spatially process a receive signal to enhance receipt of an acknowledgment from one of said clients.

Gehring discloses wherein said media access controller is configured to partition a data signal into data fragments and to (col. 3 lines 26-62):

command said transmit processor to provide a first data fragment to said antenna in an output signal (see figures 2-4, abstract, col. 2 line 40-col. 3 line 18, col. 8 line 30-col. 9 line 29, and col.9 lines 58-col. 10 line 14); and

command said receive processor to spatially process a receive signal to enhance receipt of an acknowledgment from one of said clients (see figure 7, col.10 lines 63-65, and col.12 lines 54-col. 13 line12) .

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Petrus, and have said media access controller configured to partition a data signal into data fragments and to:

command said transmit processor to provide a first data fragment to said antenna in an output signal that is spatially processed in accordance with predetermined location information that corresponds to all of said clients; and

command said receive processor to spatially process a receive signal to enhance receipt of an acknowledgment from one of said clients as taught by Gehring for the purpose of reducing data transmission latency and enhancing throughput of messages.

Regarding claims 10 and 31, Petrus discloses the method and communication device of claims 9 and 30, and transmit location information from said location-information transformer.

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However, Petrus fails to disclose wherein said media access controller is configured to subsequently command said transmit processor to provide remaining data fragments to said antenna in output signals.

Gehring discloses wherein said media access controller is configured to subsequently command said transmit processor to provide remaining data fragments to said antenna in output signals (see figures 2-4, abstract, col. 2 line 40-col. 3 line 18, col. 8 line 30-col. 9 line 29, and col.9 lines 58-col. 10 line 14).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Petrus, and have said media access controller configured to subsequently command said transmit processor to provide remaining data fragments to said antenna in output signals as taught by Gehring for the purpose of enhancing data transmission.

8. Claims 15, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Petrus in view of U.S Patent No. 6,650,881 B1 to Mithat C. Dogan (Dogan)

Regarding claims 15 and 36, Petrus discloses the method and communication device of claim 1, wherein said media access controller is configured to measure and store receive and transmit signal associated with at least one of said clients (col. 3 line 55-col. 4 lines 4) (signal processor is coupled to receiver which in turn is coupled to storage to store received signal).

However, Petrus fails to disclose signal propagation delay. Dogan discloses transmitting signal propagation delay (col. 11line 11-col. 12 line 19),

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(transmitting CR burst after delaying for D symbols; D symbols according to the propagation delay).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Petrus, and have the media access controller configured to measure and store receive and transmit signal propagation delay, as taught by Dogan for the purpose of accounting for the propagation delay during transmission.

9. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Petrus.

Petrus discloses the communication device of claims 1, and said receive processor, said media access controller, said location-information transformer and said transmit processor are realized with an appropriately-programmed digital processor (col. 3 lines 53-64).

However, Petrus fails to specifically disclose the communication device with at least one of a gate arrays. Official notice is taken that gate arrays are well known and expected in the art. It would have been obvious to included at least one of a gate arrays in Petrus as these gate arrays are logic functions used for integrated circuit used in processors and controller for processing and controlling the operation of a communication device.

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Allowable Subject Matter

10. Claims 2-4, 7,8,11-14, 16-18, 23-25,28,29, 32-35, and 37-39 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respect to communication device

U.S. Pat. No. 5515378 Roy, III et al.

U.S. Pat. No. 6714761 B1 to Anderson, III.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to EMEM EKONG whose telephone number is 571 272 8129. The examiner can normally be reached on 8-5 Mon-Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on 571 272 7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EOE
10/21/05



NICK CORSARO
PRIMARY EXAMINER